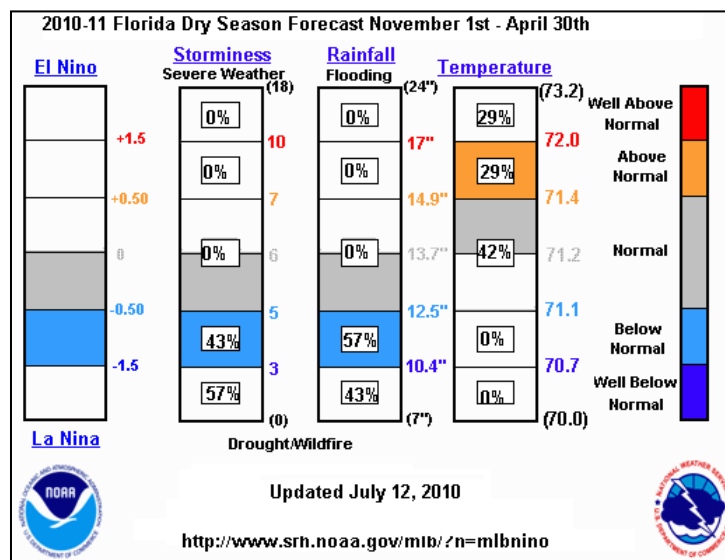


2010-2011 Dry Season Forecast for Florida (Valid for period November 1st 2010 through April 30th 2011)



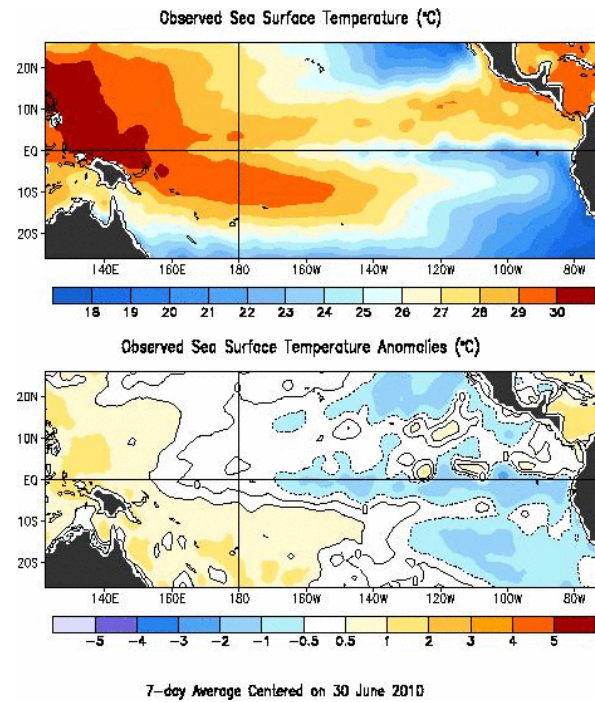
How to Interpret this Forecast Chart

Forecast Discussions: ENSO Storminess Rainfall Temperature

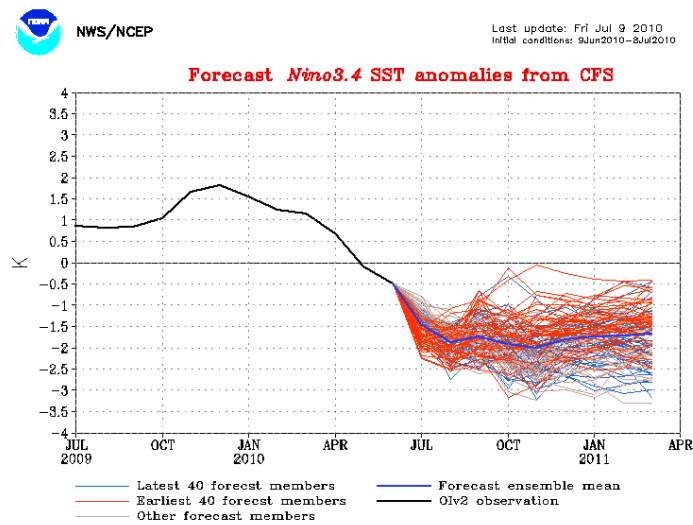
About this Product

This forecast is a result of research from the NWS in Melbourne, Florida on the EL Nino-Southern Oscillation (ENSO) and its impact on Florida's dry season. This research, conducted since early 1997, was produced in recognition of the fact that climatic fluctuations on regional and global scales have been shown to have a profound impact on Florida's weather from season to season. The importance of seasonal forecasts continue to increase as Florida's growing population becomes more sensitive to extreme weather events every year. Due to this sensitivity there is a need to better understand seasonal variability and seasonal forecasting of weather-related hazards.

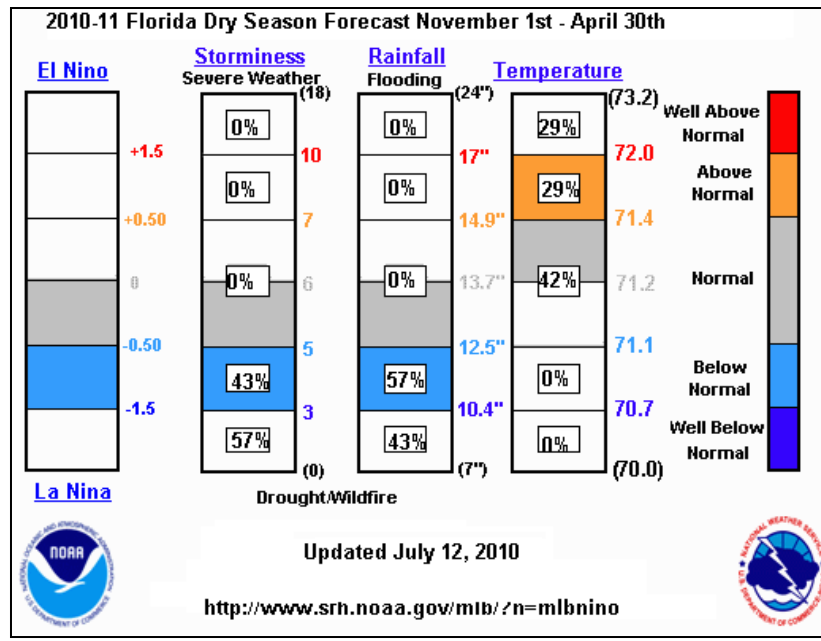
This page assimilates a variety of information on seasonal forecasts for Florida in an easy-to-use format in order to keep society better informed. The primary purpose is to increase situational awareness by serving as an early warning system for significant dry season climatic variability in Florida and has four main goals: 1) Provide a clearinghouse for official NWS and NOAA seasonal forecasts and outlooks for the Florida region. 2) Provide an easy method to monitor meteorological measurements of the progress of the dry season through links to official NWS products and locally-produced, graphical products. 3) Provide graphical dry season forecasts and localized meteorological interpretation of official forecasts, and 4) Provide educational material to help users such as emergency managers, planners, forecasters and the public to better understand the physical relationships between ENSO and Florida weather and the predictability of these relationships to better aid preparedness and mitigation efforts. Potential users of this forecast should read the [disclaimer](#) before proceeding.



Weekly Average Sea Surface Temperature



NOAA CPC NINO 3.4 Forecast



Forecast Questions: Bart.Hagemeyer@noaa.gov

ENSO Discussion:

Previous Forecast Discussions: [June 2010](#)

The Climate Prediction Center's (CPC) latest ENSO **Diagnostic Discussion** states that La Nina conditions are expected to develop this summer and continue into 2011 and a La Nina Watch has been issued. The latest **daily SST analysis** for 10 July shows that SST has continued to cool along and near the Equator in the eastern Pacific. The values for NINO 3.0 and 3.4 areas ([map of Nino areas](#)) for the week centered on 30 June were -0.7 and -0.6 respectively and indicative of weak La Nina conditions.

The latest ensemble runs of the CPC CFS model for **Nino 3.4** and **Nino 3.0** indicate that SST's should continue to cool this summer and evolve into La Nina conditions. The **latest seasonal run of the CFS** is also bullish on the development of La Nina Nino during the summer. All **SST models** now agree on the cooling scenario with the majority trending toward the cool side of neutral ENSO or weak La Nina as summer progresses. A few models including the NOAA CFS predict a strong La Nina by late summer. For this forecast update of the 2010-11 Dry Season a moderate La Nina peaking between -1.0 and -1.5 is assumed. There is much uncertainty in the evolution of Pacific SST's later this summer and fall and the forecast will be adjusted as necessary prior to the start of the Dry Season on November 1st.

This discussion will be updated by August 15th.

Our research over the years has shown that when ENSO is neutral or weak other teleconnections such as the **North Atlantic Oscillation (NAO)**, **Arctic Oscillation**

([AO](#)), [Pacific North American Oscillation \(PNA\)](#), and [Madden-Julian Oscillation \(MJO\)](#) can play a major role in Florida Dry Season weather. Even when El Nino is moderate or strong these other teleconnections can act to enhance or suppress the impact of an ENSO, or cause extreme variability within the dry season on their own. Refer to our [2006](#) and [2007](#) research reports for background. There is also an hour-long recorded technical training session on the [physical relationship of ENSO to Florida weather](#) available.

For a more in depth discussion on ENSO and its effects on Florida dry season weather and climate see our "[EL NIÑO-Southern Oscillation And Florida Educational Material](#)." For a formal definition of El Niño and La Niña see CPC's FAQ on "[What is El Niño and La Niña](#)."

Related Links:

CPC Tropical Pacific SST Forecast	CPC ENSO Diagnostic Discussion	CPC Monthly Atmospheric & SST Indices	CPC Weekly ENSO Update Products
CPC EL Nino/La Nina Page	Latest SSTs	Summary of ENSO Models	NOAA CFS Model
	BOM ENSO Wrapup	MEI ENSO Index	Long-Lead Prognostic Discussion
Univ. of Wisconsin Satellite Derived Winds & Analyses for Eastern N. Pacific	Ocean Winds from QuickScat Satellite	NOAA Geostationary Satellite Server	CPC Winter Outlook

Storminess Discussion:

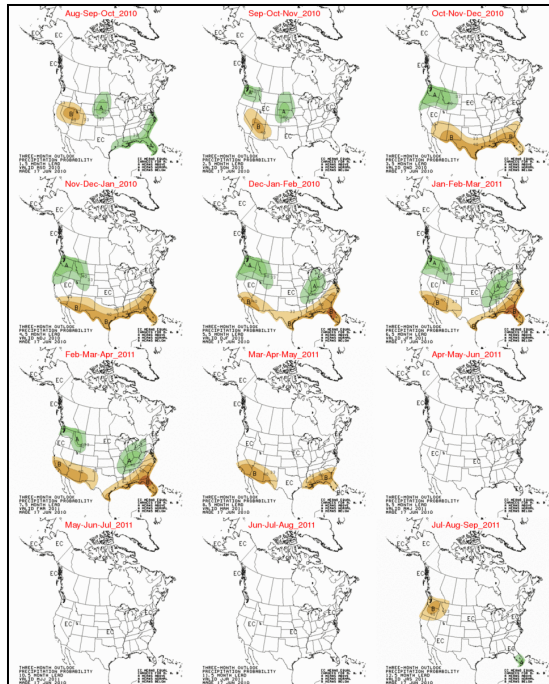
With moderate to perhaps strong La Nina conditions now expected during the 2010-11 Florida Dry Season (November 1 through April 30) below normal storminess is indicated. Conditional probabilities given average Nino 3.4 values of -1.0 (moderate La Nina) for next dry season indicate a near certainty of below normal storminess. Objective statistical guidance is for 3 winter storms over Florida for the dry season which is 3 below normal. Logistic regression results indicate a 25% chance that storminess will be more than 1 standard deviation below normal (<3 storms) and give only a 1% chance that storms will be 1 standard deviation above normal (>10). Given

the uncertainty of the Pacific SST's in the Nino 3.0 and 3.4 areas at this long range the forecast is for below normal storminess especially when compared to the near record dry season of 2009-10 during moderate El Nino conditions. This forecast is subject to revision should the SST forecast change over the summer.

This discussion will be updated by August 15th.

For a more in depth discussion on ENSO and its effects on Florida Storminess and Severe Storms check out our educational material on "[EL NIÑO-Southern Oscillation and Florida Storminess](#)" and on "[EL NIÑO-Southern Oscillation and Florida Dry Season Tornadoes](#)."

CPC Winter Outlook	CPC-NWS Suite of Official Forecasts	CPC 500mb Height Anomalies	CPC 200mb Height Anomalies	CPC 3-day IR Temperature Animation	NCEP 2-week 500mb Height Forecast Ensemble
Fronts day 3-7	MJO Monitoring	Arctic Oscillation	North Atlantic Oscillation	Pacific-North American Oscillation	NCEP Historical Analyses
	Storm Reports		UKMET NAO Outlook	Daily Weather Maps	CPC Storm Tracks
CDC 250mb Wind Animation	CDC Sea Level Pressure Animation	CDC 500mb Height Animation	CDC 7-day Average of 250mb Winds	CDC Outgoing Longwave Radiation	NCEP 2-week MSLP Forecast Ensemble



Rainfall Discussion:

With moderate to perhaps strong La Nina conditions now expected during the 2010-11 Florida Dry Season (November 1 through April 30) below normal rainfall is indicated. Conditional probabilities given average Nino 3.4 values of -1.0 (moderate La Nina) for next dry season indicate a near certainty of below normal rainfall. Objective statistical guidance is for 10 to 12 inches of rain averaged over Florida for the dry season which is below normal. Logistic regression results indicate a 33% chance that rainfall will be less than 1 standard deviation below normal (<10") and give only a 1% chance that rainfall will be 1 standard deviation above normal (>17"). Given the uncertainty of the Pacific SST's in the Nino 3.0 and 3.4 areas at this long range the forecast is for below normal rainfall and subject to revision should the SST forecast change over the summer. Official NWS [CPC forecasts](#) are also for below normal rainfall. This discussion will be updated by August 15th.

For a more in depth discussion on ENSO and it's effects on Florida's Rainfall see our "[Florida's Dry Season Rainfall and EL NIÑO-Southern Oscillation Educational Material.](#)"

Monitor the Latest Rainfall Trends for Selected Florida Cities

Past 30 Days	Past 90 Days	Past 365 Days
Tallahassee	Tallahassee	Tallahassee

<u>Jacksonville</u>	<u>Jacksonville</u>	<u>Jacksonville</u>
<u>Tampa</u>	<u>Tampa</u>	<u>Tampa</u>
<u>Miami</u>	<u>Miami</u>	<u>Miami</u>
<u>Orlando</u>	<u>Orlando</u>	<u>Orlando</u>

Related Links

[Climatological Data](#)

[CPC U.S. Drought Assessment](#)

[CPC 6-10 Day Rainfall Outlook](#)

[Rainfall Analysis](#)

[SERFC Water Resources Outlook](#)

[CPC Seasonal Rainfall Outlooks](#)

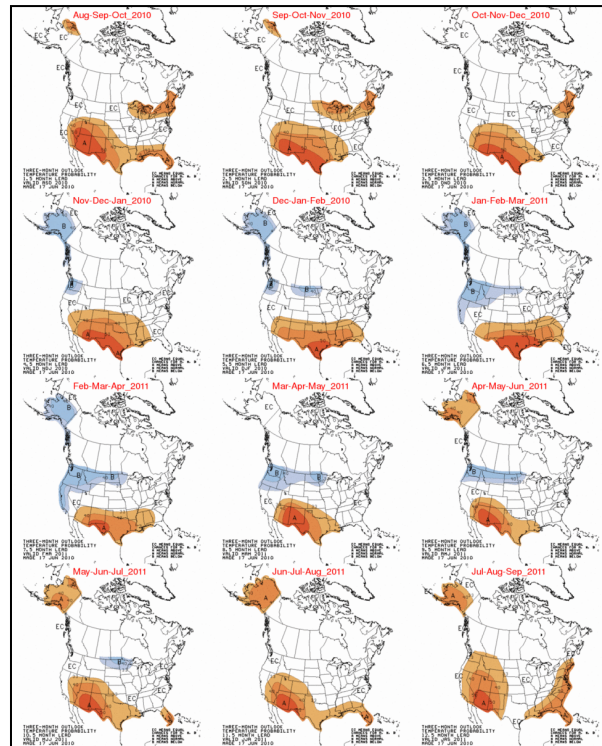
[CPC/NCEP 13 Month Seasonal Precipitation Outlook](#)

[Southeast Climate Consortium](#)

[Long Term Rainfall Plots](#)



Temperature Discussion:



With moderate to perhaps strong La Nina conditions now expected during the 2010-11 Florida Dry Season (November 1 through April 30) above normal temperatures are generally indicated, but the relationship for temperature is not as strong with ENSO as it is with storminess and rainfall. Other factors such as the [Arctic Oscillation](#) and [North Atlantic Oscillation](#) (AO/NAO) can exert a significant influence on dry season temperature as they did this past winter. At this long range the temperature forecast is uncertain as is the SST forecast. This initial forecast is for above normal temperatures. The [official CPC outlook](#) is for equal chances of above/below normal at this long range. This discussion will be updated as the summer progresses and the evolution of Pacific SST's becomes clearer. This discussion will be updated by August 15th.

For a more in depth discussion on ENSO and it's effects on Florida's Temperature see our "[Florida's Dry Season Temperature and EL NIÑO-Southern Oscillation Educational Material](#)."

Monitor the Latest Temperature Trends for Selected Florida Cities:

Past 30 Days	Past 90 Days	Past 365 Days
Tallahassee	Tallahassee	Tallahassee

Jacksonville	Jacksonville	Jacksonville
Tampa	Tampa	Tampa
Miami	Miami	Miami
Orlando	Orlando	Orlando

Climatological Data	CPC Temperature Outlooks
CPC 6-10 Day Temperature Forecast	Florida Climate Center
CDC 7-Day Surface Temperature Anomalies	SSD Daily Snow Cover Analysis
NCEP Ensemble of Mean 850mb Temperature Anomalies	

How to interpret the Florida Dry Season Chart

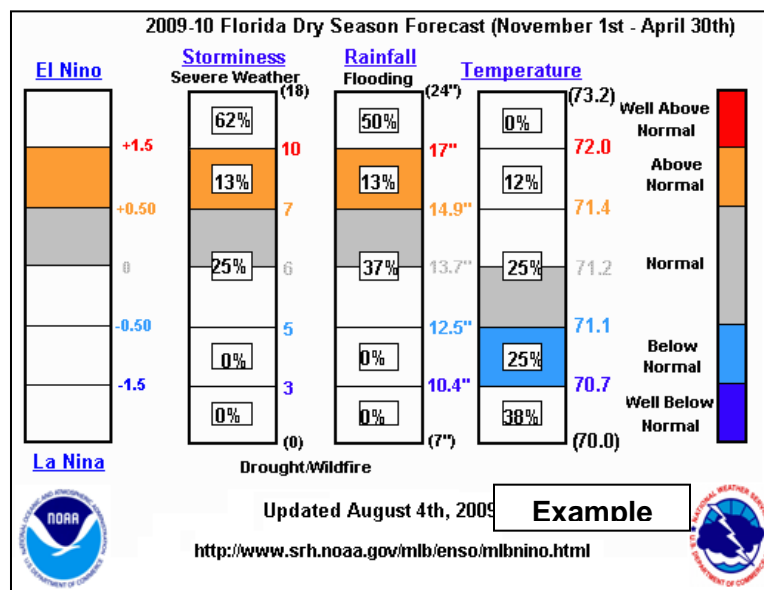
The forecast for ENSO (La Nina to El Nino) is for conditions averaged over the length of the dry season. The forecast for dry season storminess, rainfall, and temperature (1 November through 30 April) are for conditions averaged over the state of Florida and are intended to serve as an early warning for planners and decision makers of significant impacts from climatic variability, primarily from the ENSO signal. Due to their nature they are not applicable to a specific location and time within the dry season. For example, during a strong La Nina the threat of drought and wildfire is greatly increased in Florida. These negative impacts may not occur in every part of Florida, but it is highly likely they will impact some areas of Florida quite severely and the forecast for all of Florida serves as an early warning for planning and mitigation purposes. The forecast graph is meant to be used in concert with the related discussions within this document.

The forecasts are divided into 5 categories: well below normal, below normal, normal, above normal, and well above normal. The historical range of values for each category are shown on the right side of the forecast bar charts and were computed from 1950-2004 data. The actual forecast for each element is indicated by the level of the colored bar from normal, either above (toward red) or below (toward blue) normal. This forecast is a human synthesis of locally developed statistical guidance along with a variety of

other observations and forecasts such as those linked to in this document and thus is the best forecast at the time issued in the professional opinion of the forecaster. The conditional statistical probabilities for each category and forecast element are shown within boxes on the chart as an objective decision aide. For example, in the chart below from August 2009 there is a 62% chance of storminess being well above normal based on what has happened in the past when conditions matched the strength of the current El Nino forecast. However, the forecaster has forecast one category below the objective guidance because of uncertainty in the strength of the El Nino forecast.

The impacts from extreme climatic variability of storminess and rainfall are indicated from drought and wildfire for well below normal to severe weather and flooding for well above normal. However, for temperature the risk of a devastating freeze is not well correlated with overall well below normal temperatures. Indeed, devastating freezes are more likely during ENSO neutral conditions. The temperature forecast is thus intended to be used as a broad measure of temperature conditions. The forecast is updated throughout the dry season, but its value as an early warning device diminishes as the season progresses. The discussions will generally address these issues and the issue of uncertainty and should be used to supplement the forecast chart.

Forecast Questions: Bart.Hagemeyer@noaa.gov



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Disclaimers:

This web page has four main goals: **1)** Provide a clearinghouse for official NWS/NOAA seasonal forecasts and outlooks for the Florida region. **2)** Provide an easy method to monitor meteorological measurements of the progress of the seasons through links to official NWS products and locally-produced, graphical products. **3)** Provide graphical dry season forecasts and localized meteorological interpretation of official forecasts, and **4)** Provide educational material to help users such as emergency managers, planners, forecasters and the public to better understand the physical relationships between ENSO and Florida weather and the predictability of these relationships to better aid preparedness and mitigation efforts.

The achievement of these goals involves the development of graphical products, interpretative adaptive forecasts and educational material that each have some component of risk that should be understood by users.

Goal 1 is met by linking to information from official NOAA/NWS sources, primarily the Climate Prediction Center (CPC) and users should review the disclaimers associated with these products on the CPC web site and base their risk of use from information contained there. **Risk of use - Low**.

Goal 2 is met by providing links to official climate monitoring information and by

providing locally developed graphics so that users can monitor the progress of the seasons versus normal and assess the progress of the forecasts. The monitoring graphics do not contain any forecast components and are constructed using official data; however, errors could arise during data processing and plotting of these products. In addition, the quantities represented are in some cases a synthesis of various meteorological parameters and calculations and an understanding of what they represent is necessary for proper interpretation. **Risk of use - Low** .

Goal 3 is met by providing products intended to forecast selected mean atmospheric conditions and accumulated atmospheric phenomena over the breadth of Florida and the adjacent northeast Gulf of Mexico and the span of the 6-month dry season. Three forecast product groups are produced: 1) a Graphical Seasonal Outlook - a summary of ENSO, Storminess, Precipitation, and Temperature outlooks that are an adaptive blend of seasonal forecasts and official forecasts, 2) a textual seasonal forecast discussion that expands on the reasoning behind the Graphical Seasonal Outlook, and 3) raw dry season forecast parameters presented as time series of actual values versus predicted values. Their purpose is to provide a representation of statewide/regional meteorological impacts expected from 1 November to 30 April each dry season relative to normal to provide early warning of significant climatic extremes to increase situational awareness. Users should keep abreast of the day-to-day hazardous weather threats within a season by referring to [NWS Graphical Hazardous Weather Outlook pages](#).

Extreme weather events can occur within the forecast area and have significant local impacts even though the seasonal measures forecast here are not extreme. For example, record breaking rainfall could occur over an area of, say, several counties, while the broader forecast area remains in serious long-term drought. Likewise, a singular extreme weather event such as the "Superstorm" of March 1993 could occur and cause widespread destruction and human impact within an otherwise quiescent season. Potential users should review all of the linked supporting educational material to better understand the forecast process, confidence factors, and assumptions of physical relationships between ENSO and Florida weather before proceeding:

[EL NIÑO-SOUTHERN OSCILLATION \(ENSO\)](#) [STORMINESS](#) [SEVERE STORMS](#)

[PRECIPITATION](#)

[TEMPERATURE](#)

The seasonal forecasts employ multiple linear regression and logistic regression techniques and are based on the official observed and forecast NINO 3.4 and 3.0 values from the CPC and historical weather data for the Florida region. Serious errors can arise from the fact that the predictive equations are based on CPC forecasts of NINO 3.4 and 3.0 as much as 12 months in advance. The accuracy of these forecasts will have a bearing on the accuracy of the regression equations. ENSO is the dominate environmental factor in dry season weather extremes in Florida, but it is not the only factor. Forecast verification is generally quite good for well developed moderate to

strong La Nina/El Nino trends. The multiple linear/logistic regression equations do not fully account for all the variability in the atmosphere, and can have significant deviation from reality in some seasons when the ENSO signal is weak or near neutral. Other phenomena such as the North Atlantic Oscillation (NAO), Arctic Oscillation (AO) and Pacific-North American (PNA) Oscillation may play important roles in some years, and these are neither well understood nor currently forecast at long range. Our **research reports** provide more background on these oscillations and issues of predictability.

There is a well-documented concern of providing decision makers with too many forecasts or with competing/conflicting forecasts from which to choose. A serious attempt has been made to address these concerns. These forecasts are meant to supplement - not replace - the official NWS CPC seasonal and winter outlooks by providing more detail and adaptive meteorological interpretation of the impact of predicted climatic events on the Florida region. Generally, due to the nature of the forecast it will fall within the general boundaries of the official temperature and precipitation forecast. However, the forecasts of severe weather and storminess fall outside the traditional realm of seasonal forecasting and may be considered controversial. **Risk of use – Low in well-developed EL Nino/La Nina conditions and low to moderate in neutral or very weak ENSO conditions.**

Goal 4 is met by providing customized educational information on Florida seasons, the physical relationships between ENSO and Florida weather, and the predictability of these relationships. This information is generally in a constant state of review and update and should be considered a work in progress. Research continues at a rapid pace around the globe on the impact of ENSO and other climatic forces and it is nearly impossible to keep up with the latest breaking research. The information contained here, although presented in one form or another at various American Meteorological Society and National Weather Association Conferences and Symposia and published in Preprint volumes of their proceedings, has not been subject to formal peer review and may be controversial and contrary to other research results. **Risk of use – Low.**

This page is intended to be updated monthly after the preceding month's data and updated CPC ENSO forecasts are available. There is no guaranty that this page will be updated in a timely manner due to higher priority duties or other circumstances beyond our control or that this page will continue to be able to be maintained.

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